

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended): An apparatus for detecting a light-transmissive sheet-like body, comprising:

a light source unit for emitting illuminating light;

a reflector for reflecting the illuminating light;

light detecting means for detecting the illuminating light which is reflected by said reflector; and

[[a converging]] an optical system for leading the illuminating light reflected by said reflector as parallel-beam light to the light-transmissive sheet-like body and converging the illuminating light reflected by said reflector to said light detecting means,

wherein an edge of the light-transmissive sheet-like body placed between said [[converging]] optical system and said reflector is detected based on a difference between two types of information, said two types of information including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means.

2. (Original): An apparatus according to claim 1, wherein said light detecting means comprises a two-dimensional area sensor for obtaining two-dimensional distribution information of said illuminating light.

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3. (Currently Amended): An apparatus according to claim 1, further comprising a plurality of [[converging]] optical systems wherein said [[converging]] optical systems are spaced from each other along the length of said light-transmissive sheet-like body.

4. (Previously Presented): An apparatus according to claim 3, further comprising:
a plurality of light detecting means; and
processing means for processing information obtained by said plurality of light detecting means to calculate the length of said light-transmissive sheet-like body.

5. (Currently Amended): An apparatus according to claim 1, wherein said [[converging]] optical system comprises a telecentric optical system for leading said illuminating light therethrough to said light detecting means.

6. (Previously Presented): An apparatus according to claim 5, wherein said telecentric optical system comprises:
a condenser lens disposed on a side closer to said reflector; and
an aperture member disposed at a focal point of said condenser lens on a side closer to said light detecting means.

7. (Currently Amended): An apparatus according to claim 1, wherein said [[converging]] optical system comprises a half-silvered mirror for leading the illuminating light

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emitted from said light source to said light-transmissive sheet-like body and leading the illuminating light reflected by said reflector to said light detecting means.

8. (Currently Amended): An apparatus according to claim 1, wherein said light source and said [[converging]] optical system are connected to each other by an optical fiber for leading the illuminating light.

9. (Original): An apparatus according to claim 1, wherein said light-transmissive sheet-like body is made of a photosensitive material sensitive to visible light, said illuminating light having a wavelength of at least 850 nm.

10. (Previously Presented): An apparatus according to claim 1, wherein said light detecting means is a CCD camera.

11. (Currently Amended): An apparatus for detecting a light-transmissive sheet-like body, comprising:

a light source unit for emitting illuminating light;

a reflector for reflecting the illuminating light;

image capturing means for capturing as an image the illuminating light which is reflected by said reflector;

[[a converging]] an optical system for leading the illuminating light reflected by said reflector as parallel-beam light to the light-transmissive sheet-like body and converging the illuminating light reflected by said reflector to said light detecting means; and

an image processor for processing images captured by the image capturing means,
wherein an edge of the light-transmissive sheet-like body placed between said [[converging]] optical system and said reflector is detected based on a difference between two types of information, said two types of information including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means.

12. (Previously Presented): An apparatus according to claim 11, wherein said image processor determines the positions of edges of said images; and

said image processor determines the length of the light-transmissive sheet-like body based on the positions of edges.

13. (Previously Presented): An apparatus according to claim 11, wherein said image processor scans the images captured by the image capturing means in the direction in which the light-transmissive sheet-like body is fed;

said image processor detects the image density;

said image processor determines the position of an edge of said image to be where the image density changes by a predetermined amount.

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14. (Previously Presented): An apparatus according to claim 13, wherein said image processor determines the length of the light-transmissive sheet-like body based on the difference between the positions of edges detected in the image.

15. (Previously Presented): An apparatus according to claim 1, wherein said reflector reflects said illuminating light in a direction opposite to a direction in which said illuminating light comes to said reflector.

16. (Currently Amended): An apparatus for detecting a light-transmissive sheet-like body, comprising:

a light source unit for emitting illuminating light;

light detecting means for detecting the illuminating light; and

[[a converging]] an optical system for leading the illuminating light as parallel-beam light to the light-transmissive sheet-like body and converging the illuminating light to said light detecting means,

wherein an edge of the light-transmissive sheet-like body placed between said light source unit and said [[converging]] optical system is detected based on a difference between two types of information, said two types of information including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means.

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17. (Previously Presented): An apparatus according to claim 1, wherein the illuminating light passes through the light-transmissive sheet-like body twice before entering said light detecting means.

18. (New): An apparatus according to claim 7, wherein at least one of said optical systems is placed on an optical path from said light source unit to said reflector through said half-silvered mirror.